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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/882,753	06/15/2001	Senthil Govindaswamy	000170	9826

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Qualcomm Incorporated
Patents Department
5775 Morehouse Drive
San Diego, CA 92121-1714

EXAMINER	
MARIAM, DANIEL G	

ART UNIT	PAPER NUMBER
2621	

DATE MAILED: 05/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/882,753	GOVINDASWAMY ET AL.	
	Examiner	Art Unit	
	DANIEL G MARIAM	2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-35* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities: while the specification refers to: the encoder (as 104) in Figure 1, a 16x16 block (as 550), in Fig. 5a; and a 16x16 block (as 650) in Figure 5b, none of the above-identified Figures shows elements 104, 550, and 650. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 16, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Bracamonte, et al (Adaptive Block-Size Transform Coding For Image Compression).

With regard to claim 1, Bracamonte, et al discloses compiling at least one group of data from the stream data that may be represented as a 16x16 block, dividing the 16x16 group of data into groups that may be represented as four 8x8 blocks, and serializing each of the four 8x8 blocks of data (See section 2, pages 2721-2722; and Figure 1).

Claims 16 and 28 are rejected the same as claim 1 except claims 16 and 28 are directed to apparatus claims. Thus, argument analogous to that presented above for claim 1 is equally applicable to claims 16 and 28.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

5. Claims 1-35 are rejected under 35 U.S.C. 102(a) as being anticipated by Thyagarajan, et al (WO 0135673).

With regard to claim 8, a method of compressing a digital image, the image comprising pixel data, the pixel data separated into color components (Figs. 1 and 2), the method comprising the acts of: reading a group of a color component of pixel data (page 8, lines 5-17); generating a block size assignment to divide the group of a color component of pixel into sub-blocks of pixel data (page 4, lines 13-21; page 8, line 16-24); transforming the sub-blocks of pixel data into corresponding frequency domain representations (page 4, lines 22-25; and page 11, line 13-31); and scaling the frequency domain representations into a stream of data, wherein the act of scaling is based on a quality metric correlating with the quality of the image (page 12, lines 1-29); compiling at least one group of data from the stream data that may be represented as a 16x16 block, dividing the 16x16 group of data into groups that may be represented as four 8x8 blocks (page 8, lines 25-28; and page 9, lines 13-18); and serializing each of the four 8x8 blocks of data (page 4, lines 25-27; and page 12, line 30 – page 17).

With regard to claim 9, the method of claim 8, wherein the act of scaling further comprises the act of providing a frequency weighted mask to said sub-blocks of pixel data, such that the frequency weighting mask provides emphasis to the portions of the image that the human

visual system is more sensitive, and provides less emphasis to the portions of the image that the human visual system is less sensitive (See for example, page 12, lines 1-29).

With regard to claim 10, the method set forth in claim 8, wherein the act of scaling further comprises the act of quantizing the sub-blocks of pixel data based on the quality of the image (page 12, lines 1-10).

With regard to claim 11, the method set forth in claim 8, wherein the quality metric is the signal to noise ratio (which reads on page 12, lines 4-10).

With regard to claim 12, the method set forth in claim 8, wherein the act of transforming performs a Discrete Cosine Transform (See for example, page 12, line 1).

With regard to claim 13, the method set forth in claim 8, wherein the act of transforming performs a Discrete Cosine Transform followed by a Differential Quad-tree Transform (See Figure 1, items 110 and 112 respectively).

With regard to claim 14, the method set forth in claim 8, where the color components are Y, Cb and Cr color components (See page 8, lines 5-15).

With regard to claim 15, the method set forth in claim 14, wherein the Y, Cb and Cr color components are separated into even and odd color components (which broadly reads on page 7, line 24 – page 8, line 15).

With regard to claim 1, claim 8 encompasses the limitation of this claim. Thus, argument similar to that presented above for claim 1 is equally applicable to claim 1.

With regard to claim 2, the method set forth in claim 1, wherein serializing comprises zig-zag scanning each of the four 8x8 blocks of data (See for example, page 12, line 30 – page 13, line 3).

With regard to claim 3, the method set forth in claim 1, wherein serializing comprises vertical scanning each of the four 8x8 blocks of data (See Page 13, lines 1-3).

With regard to claim 4, the method set forth in claim 1, wherein serializing comprises horizontal scanning each of the four 8x8 blocks of data (See Page 13, lines 1-3).

With regard to claim 5, the method set forth in claim 1, wherein compiling at least one group comprises compiling a frame of data that may be represented as a plurality of 16x16 blocks (page 8, lines 17-18).

With regard to claim 6, the method set forth in claim 1, where the frequency based image data is separated into Y, Cb and Cr color components (See page 8, lines 5-15).

With regard to claim 7, the method set forth in claim 6, wherein the Y, Cb and Cr color components are further separated into even and odd color components (which broadly reads on page 7, line 24 – page 8, line 15).

Claims 16, 17, 18, 19, 20, 21, and 22 are rejected the same as claims 1, 2, 3, 4, 5, 6, and 7 respectively, except claims 16, 17, 18, 19, 20, 21, and 22 are directed to apparatus claims. Thus, arguments analogous to those presented above for claims 1, 2, 3, 4, 5, 6, and 7 are equally applicable to claims 16, 17, 18, 19, 20, 21, and 22.

Claims 23, 24, 25, 26, and 27 are rejected the same as claims 8, 12, 13, 14, and 15 respectively, except claims 23, 24, 25, 26, and 27 are directed to apparatus claims. Thus, arguments analogous to those presented above for claims 8, 12, 13, 14, and 15 are equally applicable to claims 23, 24, 25, 26, and 27.

Claims 28, 29, 30, 31, 32, 33, and 34 are rejected the same as claims 1, 2, 3, 4, 5, 6, and 7 respectively, except claims 28, 29, 30, 31, 32, 33, and 34 are directed to apparatus claims. Thus, arguments analogous to those presented above for claims 1, 2, 3, 4, 5, 6, and 7 are equally applicable to claims 28, 29, 30, 31, 32, 33, and 34.

Claim 35 is rejected the same as claim 8 except claim 35 is an apparatus claim. Thus, argument similar to that presented above for claim 8 is equally applicable to claim 35.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Patent Numbers: 5241395, 5724451, 5903669, and 6668019; and a Publication to Vaisey, et al. "Image Compression With Variable Block Size Segmentation".

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANIEL G MARIAM whose telephone number is 703-305-4010. The examiner can normally be reached on M-F (7:00-4:30) FIRST FRIDAY OFF.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, LEO BOUDREAU can be reached on 703-305-4607. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DANIEL MARIAM
PRIMARY EXAMINER
May 12, 2004